

Notice of Allowability

Application No.

10/045,271

Examiner

Michael B. Holmes

Applicant(s)

SHIMIZU, JUNYA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to October 25, 2001.
2. ☒ The allowed claim(s) is/are 1-34.
3. ☒ The drawings filed on 25 October 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/045,271.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____



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Examiner's Detailed Office Action

1. **Claims 1-34 are allowed.**

REASONS FOR ALLOWANCE

2. The following is an Examiner's statement for reasons for allowance:

The closest prior art *Bell* (USPN 5,706,402), *Deville* (USPN 5,999,956), *Simon Haykin*, "Ch. 20, Blind Deconvolution", *Adaptive Filter Theory, Second Edition*, Prentice Hall (1991), pp. 722-756, *Simon Haykin*, "Ch. 1, The Blind Deconvolution Problem", *Blind Deconvolution*, (ed.) Prentice Hall (1994), pp. 1-7, *Simon Haykin*, "Ch. 11, Self-Organizing Systems III: Information-Theoretic Models", *Neural Networks: A Comprehensive Foundation*, *Simon Haykin* (ed.) MacMillan (1994), pp. 444-472, does not teach or render obvious applicant's claimed invention.

With regards to claim 1, *Bell*, *Deville* or *Haykin* does not disclose “... *a separation matrix using an adaptive filter that suppresses the H-infinity norm concerning said separation matrix until the H-infinity norm is equal to or smaller than a provided scalar value.*”

With regards to claim 2, *Bell*, *Deville* or *Haykin* does not disclose “...*a specific*

separation matrix from among multiple separation matrixes based on MinMax strategy in game theory.”

With regards to claim 3, Bell, Deville or Haykin does not disclose “...a separation matrix using an adaptive filter that optimizes said cost function; and estimating and restoring said original signal by multiplying said separation matrix by said observed data.”

With regards to claim 6, Bell, Deville or Haykin does not disclose “...subtracting the average of said observed signals and performing zero averaging for said observed signals; whitening the observed signals obtained by zero averaging; separating said whitened observed signals based on a cost function that has a monotonously increasing characteristic; and performing, as a post processing, inverse whitening for the obtained observed signals.”

With regards to claim 8, Bell, Deville or Haykin does not disclose “...a separation matrix using adaptive filtering for suppressing the H-infinity norm concerning said separation matrix until the H-infinity norm is to equal to or smaller than a provided scalar value.”

With regards to claim 9, Bell, Deville or Haykin does not disclose “...the MinMax strategy in game theory to select, from separation matrixes, a specific separation matrix; and estimation/restoration means, for estimating and restoring an original signal by multiplying said separation matrix by said observed data.”

With regards to claim 10, Bell, Deville or Haykin does not disclose “...a separation matrix by using an adaptive filter with optimizing a cost function that is based on a function having a monotonously increasing characteristic.”

With regards to claim 12, Bell, Deville or Haykin does not disclose “...a separation matrix update unit, for updating said separation matrix estimated at said time based on said

error signal, so that error evaluation is weighted by said cost function having the monotonously increasing characteristic.”

With regards to claim 14, *Bell, Deville or Haykin* does not disclose “... *using an adaptive filter with optimizing a cost function that is based on a function having a monotonously increasing characteristic; and separation/extraction means, for separating and extracting said speech signals from said mixed speech data by multiplying said separation matrix by said mixed speech data.*”

With regards to claim 15, *Bell, Deville or Haykin* does not disclose “... *using an adaptive filter with optimizing a cost function that is based on a function having a monotonously increasing characteristic; and separation/extraction means for separating and extracting said observed bio-signal from said observed data by multiplying said separation matrix by said observed data.*”

With regards to claim 17, *Bell, Deville or Haykin* does not disclose “... *a separation matrix for said economic statistical data using an adaptive filter with optimizing a cost function that is based on a function having a monotonously increasing characteristic; and separation/extraction means, for separating and extracting said fluctuation element from said economic statistical data by multiplying said separation matrix by said economic statistical data.*”

With regards to claim 20, *Bell, Deville or Haykin* does not disclose “... *a separation matrix for said observed data using an adaptive filter with optimizing a cost function that is further based on a function having a monotonously increasing characteristic; and*

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separation/extraction means, for separating and extracting a user signal from said observed data by multiplying said separation matrix by said observed data.”

Correspondence Information

3. Any inquires concerning this communication or earlier communications from the examiner should be directed to **Michael B. Holmes** who may be reached via telephone at **(703) 308-6280**. The examiner can normally be reached Monday through Friday between 8:00 A.M. and 5:00 P.M. est. If you need to contact the Examiner, regarding After Final concerns, please send it to **(703) 746-7238**. If you need to send an Official facsimile transmission, please send it to **(703) 746-7240**. If you need to send a Non-Official or Draft facsimile transmission, please send it to **(703) 746-7239**.

If attempts to reach the examiner by telephone are unsuccessful, the **Examiner's Supervisor, Anthony Knight**, may be reached at **(703) 308-3179**.

Any response to this office action should be mailed too:

Director of Patents and Trademarks Washington, D.C. 20231, or **Hand-delivered** responses should be delivered to the **Receptionist, located on the fourth floor of Crystal Park II, 2121 Crystal Drive Arlington, Virginia.**

Michael B. Holmes

Patent Examiner
Artificial Intelligence
Art Unit 2121

United States Department of Commerce
Patent & Trademark Office



Anthony Knight
Supervisory Patent Examiner
Group 3600